

PRE-BOARD EXAMINATION-2 (JANUARY – 2020)

CLASS: XII

ENGINEERING GRAPHICS

Time: 3 hrs.

MAX. MARKS : 70

General Instructions:

- (i) Attempt all the questions.
- (ii) Use both sides of the drawing sheet, if necessary.
- (iii) All dimensions are in millimeters.
- (iv) Missing and mismatching dimensions, if any, may be suitably assumed.
- (v) Follow the SP: 46- 2003 revised codes (with First angle method of projection).
- (vi) In no view of question 2, hidden edges or lines are required.
- (vii) In question 4, hidden edges or lines are to be shown in views without section.
- (viii) Give your answers according to questions.

1. Answer the following multiple choice questions. Print the correct choice on your drawing sheet. (5)

- (i) The diameter of a sphere is 80 mm. In isometric projection it will appear equal to:
 - a) 64 mm
 - b) 8 mm
 - c) 72 mm
 - d) 80 mm
- (ii) The taper on a rectangular sunk key is taken as _____
 - a) 1 : 30
 - b) 1 : 100
 - c) 1 : 50
 - d) 1 : 10
- (iii) Which one of the following is not a temporary fastener?
 - a) bolts
 - b) screws
 - c) keys
 - d) rivets
- (iv) When the cutting plane passes through the whole object centrally then it is known as:
 - a) half section
 - b) full section
 - c) cross section
 - d) middle section
- (v) A rubber ring as a gasket in Flange Pipe Joint is provided between the two flanges to:
 - a) align the two flanges
 - b) fill the gap between two flanges
 - c) support the bolts and nuts
 - d) make a leak proof joint

2. (i) Construct an isometric scale. (4)
- (ii) Draw the isometric projection of an inverted hexagonal pyramid of base edge 30 mm and height of 60 mm keeping two of its base side parallel to the V.P. Draw the axis and indicate the direction of viewing. Give all dimensions. (7)
- (iii) A cube of 50 mm edges rests on its base on H.P., with two of its faces parallel to V.P. A hexagonal pyramid of base side 25 mm and height 45 mm, with two of its base sides parallel to V.P., is resting centrally on the top face of the cube, with its hexagonal face on top parallel to H.P. and their common axis vertical. Draw its isometric projection. (13)
Show the axis of each solid and indicate the direction of viewing. Give all dimensions.
3. (i) Draw to scale 1 : 1 the standard profile of a **Square thread** and a **Knuckle thread**, taking enlarged pitch as 40 mm for each. Give standard dimensions. (8)

OR

Draw to scale 1 : 1, the front view and top view of a **T-headed Bolt** of size M20, keeping its axis perpendicular to H.P. Give standard dimensions.

- (ii) Sketch freehand, the front view and left-hand side view of a **Collar Stud** with diameter M20, keeping the axis parallel to H.P. and V.P. Give all the standard dimensions. (5)

OR

Sketch freehand, the front view and left-hand side view of a **60° Countersunk flat head rivet** of diameter 25 mm, keeping its axis parallel to H.P. and V.P. Give all the standard dimensions.

4. The figure below shows the front view and side view of the assembly of an **Open Bearing**. Disassemble its parts correctly, keeping them in same position, with respect to H.P. and V.P., and then draw to scale 1 : 1, the following:
- (a) Front view left half in section of the body and its top view. (14)
- (b) Front view of the bush, showing right half in section and its top view. (8)
- Print title of both and scale used. Draw projection symbol. Give 8 important dimensions. (6)

(b) Side view as viewed from the right.

(8)

Print the title and scale used. Draw projection symbol. Give 6 important dimensions.

(6)

